



# Computational Science and Engineering at Kean University

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# Features of Program

- Embedded within cross disciplinary center/STEM honors college
  - 8 faculty across 4 disciplines, 3 specific to computational science (computational physics, applied mathematics, bioinformatics).
- 5 year combined BS/MS
  - 2 year interdisciplinary core, Bio, Physics, Chemistry, Calculus, Linear Algebra, Statistics, Programming
  - Research First Initiative – research projects integrated into curriculum starting at Freshman year through graduate year
  - Coursework evenly split between math and computer science with specialized courses in modeling (2 semesters, one with pedagogy focus shared with math ed candidates), computational partial differential equations, data analysis, and high performance computing
  - Additional science electives with advisement per students plan of study
    - Advisement options in bioinformatics and computational physics (roughly minor worth of content)



# Our Experience

- The Numbers
  - One of many options within small honors college
    - Able to boost some low enrollment courses with students from other options
    - Difficult building numbers as departmental focus could get spread too thin
    - Recruitment target is entering freshman, but CSE not a field many parents/students have heard of
    - ~3 students per year
  - Numbers dropped perilously low around 2011-2012
    - ~1 student per year
    - XSEDE workshop on CSE Education, industry roundtable discussion
    - Rework of curriculum to focus on bioinformatics as an option
  - Numbers rebounding from 2013 on
    - Rebranding as CSE (had previously been “computational math”)
    - Summer 6-week immersive high school research experience
    - Research First Initiative
    - ~8-10 students per year